

Association for Information Systems

AIS Electronic Library (AISeL)

ICEB 2020 Proceedings

International Conference on Electronic Business
(ICEB)

Winter 12-5-2020

The Continuous Use Intentions and Antecedents of Novice Players in the Social Network Online Games

Wei-Hsi Hung

National Chengchi University, Taiwan, fhung@nccu.edu.tw

Kai-Ju Chuang

National Chengchi University, Taiwan and Hsuan Chuang University, Taiwan, karen999k@gmail.com

Follow this and additional works at: <https://aisel.aisnet.org/iceb2020>

Recommended Citation

Hung, Wei-Hsi and Chuang, Kai-Ju, "The Continuous Use Intentions and Antecedents of Novice Players in the Social Network Online Games" (2020). *ICEB 2020 Proceedings*. 2.

<https://aisel.aisnet.org/iceb2020/2>

This material is brought to you by the International Conference on Electronic Business (ICEB) at AIS Electronic Library (AISeL). It has been accepted for inclusion in ICEB 2020 Proceedings by an authorized administrator of AIS Electronic Library (AISeL). For more information, please contact elibrary@aisnet.org.

The Continuous Use Intentions and Antecedents of Novice Players in the Social Network Online Games

(Work in Progress)

Wei-Hsi Hung, National Chengchi University, Taiwan, fhung@nccu.edu.tw

Kai-Ju Chuang*, National Chengchi University, Taiwan, Hsuan Chuang University, Taiwan,
karen999k@gmail.com

ABSTRACT

Social network online games (SNOGs) make players have a positive usage status (such as: entertainment, and enjoyment). Yet, it may also produce a negative usage status (such as: technostress). Users who are new to social network online games are termed novice gamers. Based on the theory of Technological-Personal-Environmental (TPE), this research proposes a framework to explain the adoption of social network online games from the novice players' perspective, and conducts qualitative in-depth interviews with them to define the key factors for the continuous usage intention on social network online games. This research plans to use online questionnaires and structural equation modeling (SEM) to verify models and hypotheses in order to obtain antecedents of the continuous usage intention for novice players in social network online games and related impact.

Keywords: Social network online game, novice user, expert user, continuous use intention

*Corresponding author

INTRODUCTION

With the advancement of technology, smart phones have become people's platform for entertainment and social interaction. According to relevant analysis of Newzoo, the benchmarking platform for global game market data analysis has revealed several key finding (Newzoo, 2020; 199IT.COM, 2020; Wijman, 2020). Firstly, by the end of 2020, there will be 2.7 billion gamers in the world, and the number of gamers worldwide will continue to grow. Secondly, among global gamers, 2.5 billion plays mobile games, 1.3 billion plays PC-based games, and 80 million plays console games. Thirdly, the global games market revenue will reach 159.3 billion US dollars in 2020. The Asia-Pacific region is the largest market, in 2020, games revenue will reach 78.4 billion US dollars, an annual growth of 9.3%, accounting for half of global game revenue. Fourthly, mobile games (including smartphone games and tablet games) are the largest market, generating \$77.2 billion in revenue. Lastly, many players in these emerging markets are entering games through mobile devices. In the future, games are likely to become new social media platforms, and they may also bring new business models to the next generation. From the perspective of game revenue structure, mobile games also continue to grow in the market and become the dominant player in the gaming industry.

Over the past decade, computers and mobile games have become one of the mainstream cultures in the lives of young people. Today based on games' social interaction uniqueness, people can create a unified interest, goals, and experiences that can connect each other together while at the same time, the gaming world as a whole is more immersive than social applications, and the feedback of games is often more instantaneous, satisfying, interactive, and fun than social media alone. Therefore, young people are shifting from social media to video games that provide better interactive experiences (Newzoo, 2020).

Game feature is one of the characteristics of smart phones. Users will experience immersion (Ha, Yoon, & Choi, 2007) and a sense of pleasure when playing mobile games. This experience allows players to revisit the same game again and again, so that users get drawn to it (Shin & Kim, 2008). Since social games have a large number of players, the users who entertain themselves at the same time have created the technological pressure of social games, and at the same time caused negative psychological states (such as technostress or addiction).

In the past, most of the factors related to technological acceptance were the TOE (Technology-Organization-Environment) framework proposed by Tornatzky and Fleischer (1990), which was the most widely accepted. Due to the relevant factors contained in the existing TOE framework, the current academic situation cannot fully meet the needs of research in terms of the user behavior of mobile social network players. Therefore, this research refers to the TPE (Technological-Personal-Environmental) model classification proposed by Jiang, Chen, and Lai (2010), and converts the TOE architecture into a personal usage model, which are respectively the Technological Context, Personal Context, and Environmental Context and other three categories, make the extension of TOE mode more complete. This research is based on the TPE framework to explore the continuous use intentions and related influences of the novice player group in the context of social network online games (SNOGs).

LITERATURE REVIEW

Social Network Game

Gaming is regarded as a way of relaxation and leisure, and as society has evolved into digital games, the popularity of digital games has evolved into a communication medium used by millions of people (Terlutter & Capella, 2013). Shin and Shin (2011) defined social network online games as multiplayer games, with one or more functions, and a casual social platform that provides a person with a role and identity. Social games use existing social networks and platforms, such as smart phones to share with friends. The difference between social network games and general games is that they pay attention to the connection between friends, is convenient and can bring entertainment, so it has become a trend.

Wang and Lee (2020) define Mobile Social Network Games (MSNGs) as a product that combines games and social network services (SNSs), and they also believe that this type of game mechanism provides players with more fun and establishes a strong social atmosphere through competition or cooperation modes.

Due to the development of technology and the popularization of the Internet, online network games have the characteristics of real-time, five-sense experiences, media, interaction, and social, which have driven the trend of social network games. These have formed a large number of game players. Compared with stand-alone games, online network games can bring more social interactions, expand interpersonal relationships, and bring more entertainments, but frequent use can easily lead to friction and pressure.

Continue Use Intention

Bhattacharjee (2001) investigates the consistency between the decision of individuals to continue using information technology and the decision of consumers to repeat purchases, and proposes to use the expectation confirmation theory in the scientific literature as a theoretical basis to explain the user's intention to continual use. He proposes an expectation-confirmation model, with continuance intention as the contingency number.

Other studies have tried to integrate theories or models to explain the users' intention to continue using information technology. From the perspective of social capital theory, Hsiao and Chiou (2012) studied the Massive Multiplayer Online Game (MMOG) in the context of a community to explore how to influence personal attitudes and continued use intentions. Wang *et al.* (2020) used perceived entertainment and concentration as intermediary variables to explore the continuous use intention of mobile social network games (MSNGs). The result shows that perceived entertainment and concentration have a significant positive impact on continued use intentions.

However, on the other hand, Tarafdar *et al.* (2020) believe that the use of Information Technology (IT) may become a source of stress, namely, technostress, for people to adopt certain technological applications. It also explores the relationship between technostress and technological addiction caused by people adopting social networking sites. This study pointed out that even if people find that they are exhausted and unable to keep up and responding to (posts) on social networking sites, it is still difficult for people to leave the use of social networking sites. Even when individuals are stressed by using social networking sites, they may continue to be addicted to the same social networking sites.

TPE Framework

Jiang *et al.* (2010) referred to numerous TOE theories related documents, and proposed that the factors affecting the adoption of personal information technology are classified according to the TPE (Technological-Personal-Environmental) model, which are divided into three categories: technology, personal, and environment. The meanings are explained as follows:

1. Technology Context: It contains many factors. Taylor and Todd (1995) studied the use of information technology by individuals and found that self-efficacy has an impact on perceived behavior control, which in turn affects the users' behavior intentions and usage behavior. Hackbarth, Grover and Yi (2003) pointed out that entertainment and technostress are considered to be systematic experiences that have a significant mediating effect on perceived ease of use.
2. Personal Context: Contains many factors, such as personal-related content that will affect the choice of information technology, including personal personality and other personal characteristics and other related attributes, such as: extraversion and risk aversion. Related research has pointed out that personality traits affect the choice of information technology (Korzaan & Boswell, 2008).
3. Entertainment Context: It contains many factors. The environmental aspect refers to the mutual relationship between individuals in a social group environment, such as interpersonal relationships. The common theory in the environment is the system theory, that is, group pressure, which is a personal belief, attitude and behavior that will be affected by the system (Emdad, Badamass & Mouakket, 2009; Scott, 2001).

Novice IT Users

This research focuses on social network online games. In 1991, Mackay and Lamb divided web users into three categories based on their experiences, namely novice, intermediate and expert.

In this research the author summarizes previous research on human-computer interaction and the key to successful technological development, with analyzation by user type, as shown in Table 1.

The study adopts Mackay and Lamb in 1991 for the type of web users, and defines a novice as having used the game software but not using it frequently nor is specialized. That is, the beginner himself has no experience with the game and cannot immediately master the situation of the game. Even using it once is also considered as a novice.

Table 1. User Types

Year	Author	User Type
1991	Mackay and Lamb (1991)	novice, intermediate and expert
2000	Dreyfus and Dreyfus (2000)	Novice, Advanced beginner, Competent, Proficient and Expert
2003	Hackbarth <i>et al.</i> (2003)	novice, intermediate and expert
2010	Brandtzæg (2010)	No use, Low use, Medium use and High use

Source: This study.

RESEARCH METHOD

Research Design and Research Objects

The study explores the antecedents that affect the continuous use of social network online games, the use status, the causal relationship between continuous use intent and various variables, and then classifies and organizes them to provide an integrated antecedent framework to understand the relationship between various motivations and users' continued use of social network online games. Since none of the previous studies has proposed an integrated framework and concept, the design of this research first focuses on the group of young users of social network online games as the main analysis object.

The research design is expected to adopt a two-stage data collection. The first stage is the literature review. After exploration, the research category will be proposed, and the continuous use intention of the social network online games for novice group is summarized, the key influence antecedents in the TPE dimension are defined, and the novice group is also targeted (a total of 20 people) to conduct qualitative interviews and to be compared with literature-based methods.

After this research has gone through the aforementioned process, the propositions of this research category and the interview results are obtained. It is expected that the second phase of quantitative research and analysis will be carried out next to verify the relevant antecedents, propositions and hypotheses of the continuous use intentions of novice players in social network online games. The question items will be developed first, followed by online questionnaire survey, data analysis, SEM structural equations and model verification, and then conduct qualitative and quantitative research results summary, comparison and analysis, and it is expected that conclusions and suggestions will be put forward to define academic contributions and research observations on the current development of the industry.

PROPOSITIONS

In this study, we plan to conduct interviews for novice group. The results of the interview will be generated by using grounded theory to find out the various variables that influence the continuous use intention of the TPE dimension.

Models and Propositions

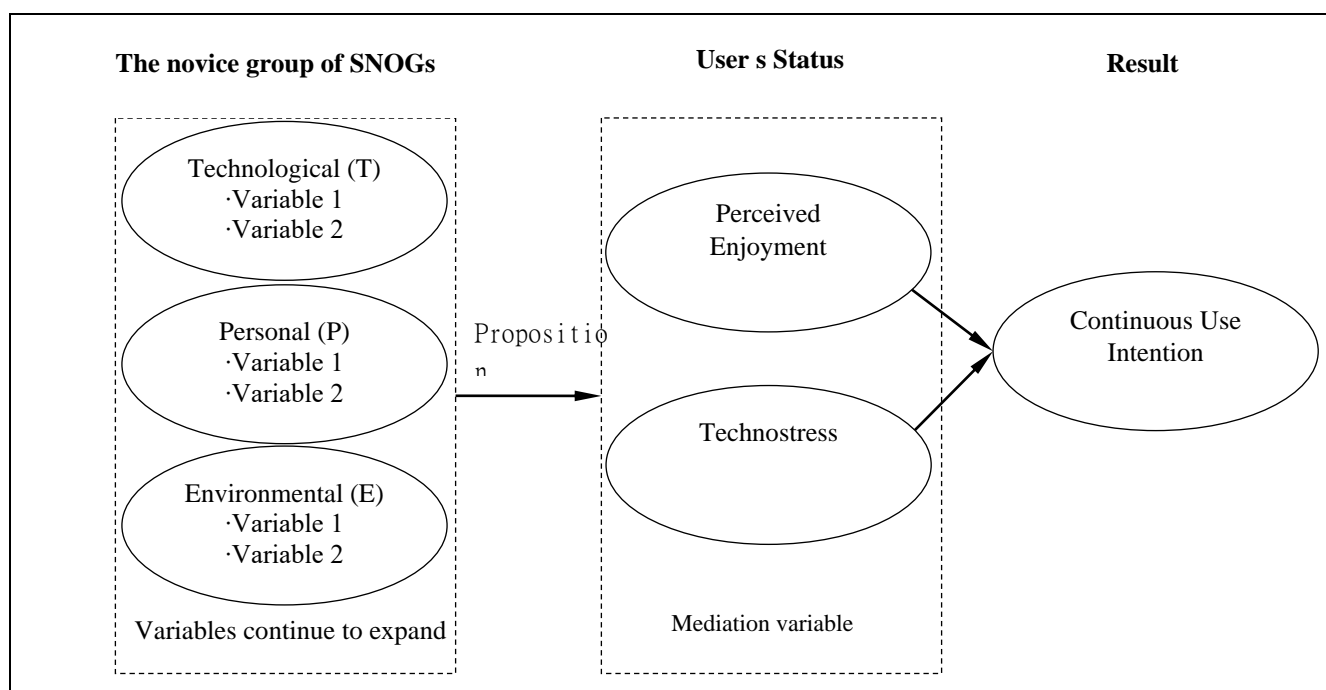
The research revises the TPE model proposed by Jiang *et al.*, (2010), and divides the impact on the use of information technology into three major aspects: technology, personal, and environment. It also refers to related past research, and then establishes the proposition of social network online games in this research, then proposes a social game model: "the model of the continuous use intention of the novice group" (please refer to Figure 1).

Proposition Regarding the Continuous Use Intention of the Novice Group of Social Network Game Players

Hackbarth *et al.* (2003) pointed out that many studies have shown that: in the initial stage of using a computer system, many users will have anxiety. The results of the study show that the user's system experience will affect the individual's entertainment of the system. Beaudry and Pinsonneault (2010) believe that few people pay attention to understanding how

emotions affect the initial use of information systems. The increase in technological anxiety will greatly reduce the satisfaction of interacting with information technology, and affect the intention of using information technology, especially for novices and initial users. This study found that variable such as novices' experience of using the system, perceived ease of use, self-efficacy, etc., will all affect the state of use. However, there are still some points that can be clarified in the existing research results on the network online games of the novice community. Based on the above discussion, this research has compiled the following propositions (please refer to Figure 1):

Proposition: In social network online games, the variables in the TPE dimension have a significant impact on the game usage status of novice players



Source: This study.

Figure 1: The preliminary model of continuous use intention of the novice group of social network online games

CONTRIBUTIONS AND FUTURE RESEARCH

The study draws various relevant comments and analyses of experts and scholars on the research field from the literature discussion, including social network online games, the antecedents of technology adoption, continuous use intentions, the transition from TOE to TPE, etc.

At this stage, the research draws the conclusion from literature review. Future research may employ in-depth interviews, grounding methods, and research observations to identify what novice's user of social network online games are interested in using new technologies. The relevant variables classified by the TPE dimensions include 3 levels, i.e., Technology level: perceived usefulness, perceived ease of use, self-efficacy; Personal level: compatibility, extraversion, risk appetite and Environmental level: institutional pressures, imitation behavior, Social Influence... and other variables. Although these variables correspond to entertainment and technostress, they may have different levels of impact on continuous use intention.

The design of this research is expected to adopt a variety of research methods (document comparison method, grounded method, interview method, survey method, SEM, etc.) for research analysis and comparison, and conduct two-stage qualitative research method and quantitative research method. The research results will be analyzed and compared to derive more in-depth research findings. It is hoped that after a scientifically proven research process, relevant research results can be obtained and analyzed and discussed.

REFERENCES

- [1] 199IT.COM (2020). Global Games Market Report. (in Chinese) Retrieved from <http://www.199it.com/archives/1082336.html> (13 August 2020)
- [2] Beaudry, A., & Pinsonneault, A. (2010). The other side of acceptance: studying the direct and indirect effects of

- emotions on information technology use. *MIS Quarterly*, 34(4), 689-710.
- [3] Bhattacharjee, A. (2001). Understanding information systems continuance: an expectation-confirmation model. *MIS Quarterly*, 25(3), 351-370.
- [4] Brandtzæg, P. B. (2010). Towards a unified Media-User Typology (MUT): A meta-analysis and review of the research literature on media-user typologies. *Computers in Human Behavior*, 26(5), 940-956. <https://doi.org/10.1016/j.chb.2010.02.008>.
- [5] Dreyfus, H., & Dreyfus, S. E. (2000). *Mind Over Machine*. New York: The Free Press.
- [6] Sodano, D. (2016). Mobile Taiwan: A look at a highly mobile market. *Insider Intelligence-eMarketer*. Retrieved from <https://www.emarketer.com/Article/Mobile-Taiwan-Look-Highly-Mobile-Market/1014877?ecid=NL1007>. (13 August, 2020)
- [7] Emdad, A. F., Badamas, M., & Mouakket, S. (2009). Factors and impacts of low utilization of Internet: The case of Arab countries. *Journal of International Technology and Information Management*, 18(3), 299-320.
- [8] Ha, I., Yoon, Y., & Choi, M. (2007). Determinants of adoption of mobile games under mobile broadband wireless access environment. *Information & Management*, 44(3), 276-286.
- [9] Hackbarth, G., Grover, V., & Mun, Y. Y. (2003). Computer playfulness and anxiety: positive and negative mediators of the system experience effect on perceived ease of use. *Information & Management*, 40(3), 221-232.
- [10] Hsiao, C. C., & Chiou, J. S. (2012). The effects of a player's network centrality on resource accessibility, game enjoyment, and continuance intention: A study on online gaming communities. *Electronic Commerce Research and Applications*, 11(1), 75-84.
- [11] Jiang, Y., Chen, D., & Lai, F. (2010). Technological-personal-environmental (TPE) framework: A conceptual model for technology acceptance at the individual level. *Journal of International Technology and Information Management*, 19(3), 89-98.
- [12] Korzaan, M. L., & Boswell, K. T. (2008). The influence of personality traits and information privacy concerns on behavioral intentions. *Journal of Computer Information Systems*, 48(4), 15-24.
- [13] Mackay, J. M., & Lamb Jr., C. W. (1991). Training needs of novices and experts with referent experience and task domain knowledge. *Information & Management*, 20(3), 183-189.
- [14] Newzoo (2020). *Global Games Market Report*. From <https://newzoo.com/products/reports/global-esports-market-report/> (12 August 2020)
- [15] Scott, W. R. (2001). *Institutions and Organizations*. Thousand Oaks, CA; Sage.
- [16] Shin, D. H., & Kim, W. Y. (2008). Applying the technology acceptance model and flow theory to cyworld user behavior: implication of the web2.0 user acceptance. *CyberPsychology & Behavior*, 11(3), 378-382.
- [17] Shin, D. H., & Shin, Y. J. (2011). Why do people play social network games? *Computers in Human Behavior*, 27(2), 852-861.
- [18] Tarafdar, M., Maier, C., Laumer, S., & Weitzel, T. (2020). Explaining the link between technostress and technology addiction for social networking sites: A study of distraction as a coping behavior. *Information Systems Journal*, 30(1), 96-124. DOI: 10.1111/isj.12253
- [19] Taylor, S., & Todd, P. A. (1995). Understanding information technology usage: A test of competing models. *Information Systems Research*, 6(2), 144-176.
- [20] Terlutter, R., & Capella, M. L. (2013). The gamification of advertising: analysis and research directions of in-game advertising, advergames, and advertising in social network games. *Journal of Advertising*, 42(2-3), 95-112.
- [21] Tornatzky, L.G., & Fleischer, M. (1990). *The Processes of Technological Innovation*. Massachusetts: Lexington.
- [22] Wang, H., & Lee, K. (2020). Getting in the flow together: The role of social presence, perceived enjoyment and concentration on sustainable use intention of mobile social network game. *Sustainability*, 12(17), 6853. DOI: 10.3390/su12176853
- [23] Wijman, T. (2020). Newzoo released the "2020 Global Games Market Report": Global game players will reach 3 billion by 2023, player participation and industry revenue will continue to rise. (in Chinese) Retrieved from <https://newzoo.com/insights/articles/games-market-revenues-engagement-trends-2020-2023-gaming-report-chinese/> (13 August 2020).